

ABSTRACT

Devices and methods for providing a known resistance load and measuring an internal gyration angle of a mold in a gyratory compactor. A device in one form has a cylindrical body with protrusions through which a known resistance force is applied by the gyratory compactor, and probes which extend from the body to measure an internal angle of gyration of a mold within a gyratory compactor. The device is placed into a cylindrical mold which is placed into a gyratory compactor. Mold end plates may or may not be required depending on the gyratory compactor configuration and construction of the device body. As the mold is tilted on its axis to an operative gyration angle, the protrusions on each end of the body apply a moment force to the mold which produces a known resistance force on the gyratory compactor frame. Measurement of an internal angle of gyration is made while the resistance force is applied to the compactor frame and while the gyratory compactor gyrates the mold. The apparatus is then removed from the mold and the measured angle is obtained by connection to an external computer or directly read from the device. A display may be built into the body of the device to display the result directly. The components of the device inside the cylindrical body may be alternately arranged so that the angle measurement probes extend from the top or bottom or side wall of the cylindrical body. Use of an internal loading device in combination with an internal gyration angle measurement device is also disclosed. Use of an internal loading device in a gyratory compactor which is instrumented to measure an internal gyration angle external of the mold is also disclosed.